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WASHINGTON LETTER.

WASHINGTON, MARCH 15, 1891.

GEOGRAPHICAL RESULTS OF THE CENSUS.—Mr. Henry Gannett, in charge of the geographical work of the eleventh census, says * that the areas of the States and Territories are identical with those published by the tenth census excepting as they have been modified by the following territorial changes:

(1) The formation of the Territory of Oklahoma.

(2) The division of Dakota into North and South Dakota.

(3) The transfer of a small part of South Dakota to Nebraska.

The gross area is 3,025,600 square miles, of which 2,970,000 is land surface and 55,600 water surface. The areas of the counties have been thoroughly examined and revised.

According to the same authority † the mean annual temperature of the United States, excluding Alaska, is 53°. The greatest density of population naturally centres on this pivot, ranging from 50° to 55°. From this, as a maximum, the density of population rapidly diminishes with the increase or decrease of temperature. The most rapid proportional increase has taken place at the two extremes, where it has trebled between 1870 and 1890, while in the same time it has increased but about 50 per cent. in the most densely settled group.

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* Census Bulletin No. 23.

† Census Bulletin No. 33.

The influence of rainfall* is shown in the fact that the main body of the population inhabits the region in which the annual rainfall is between 30 and 50 inches, three-fourths of the inhabitants, or thereabouts, being found there. On either side, as the rainfall increases or diminishes, the population diminishes rapidly. The arid region of the West, where the rainfall is less than 20 inches—a region which comprises two-fifths of the entire area of the country—contains at present less than 3 per cent. of the population. The most rapid *increase*, however, has been where the rainfall ranges from 20 to 30 inches; that is, in the eastern portion of the great plains ranging from Texas to Dakota, where the density has increased in twenty years from 1.6 to 8.1.

Mr. Gannett further says,† that the centre of population in 1890 was in the following position:

Latitude	39° 11′ 36″
Longitude	85° 32′ 53″

It rests in southern Indiana, at a point a little west of south of Greensburg, and twenty miles east of Columbus, Indiana. To those who have not access to the *Bulletin* referred to the following extracts will be interesting:

In 1790 the centre of population was at 39° 16.5′ N. lat. and 76° 11.2′ W. long. or, about twenty-three miles east of Baltimore. Between 1790 and 1800 it moved almost due west to a point about eighteen miles west of the same city, being in lat. 39° 16.1′ and long. 76° 56.5′. From 1800 to 1810 it moved westwardly and slightly southward to a point about forty miles north-west by west from Washington, being in lat. 39° 11.5′ and long. 77° 37.2′. From 1810 to 1820 it moved westward and again, slightly southward to a point sixteen miles north of Woodstock, Va., being in lat. 39° 5.7′ and long. 78° 33′. From 1820 to 1830 it moved still further westward and southward to a point about nineteen miles south-west of Moorefield, W. Va., being in lat. 38° 57.9′ and long. 90° 16.9′. From 1830 to 1840 it moved still further westward, but slightly changed its direction northward, reaching a point sixteen miles south of Clarksburg, W. Va., being in lat. 39° 2′ and long 80° 18′. From 1840 to 1850 it moved westward and slightly southward again, reaching a point about twenty-three milet south-east of Parkersburg, W. Va., in lat. 38° 59′ and long. 81° 19′. From 1850 to 1860 it moved westward and slightly northward reaching a point twenty miles south of Chillicothe, Ohio, in lat. 39° 0.4′, long. 82° 48.8′. From 1860 to 1870 it moved westward and sharply northward, reaching a point about forty-eight miles east by north of Cincinnati, Ohio, in lat. 39° 12′, long. 83° 35.7′. In 1880 the centre of population had returned southward to nearly the same latitude which it had in 1860, being lat. 39° 4.1′, long. 84° 39.7′. During the past decade it moved northward into practically the same latitude which it occupied in 1870, its present position being as already stated lat. 39° 11′ 56″, long. 85° 32′ 53″.

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* Census Bulletin, No. 32.

† Census Bulletin, No 34.

The closeness with which the centre has clung to the parallel of 39° cannot fail to be noticed. The most northern point reached was in 1790, the most southern in 1830. The extreme variation in latitude has been less than 19 minutes, while the movement in longitude has been nearly 9.5 degrees, or a total westward movement of 505 miles.

The movement by miles is shown in the following table:

1790.	23 miles east of Baltimore, Md.		
1800.	18 miles west of Baltimore, Md.	41	miles.
1810.	40 miles north-west by west of Washington, D. C.	36	"
1820.	16 miles north of Woodstock, Va.	50	"
1830.	19 miles west-southwest of Moorefield, W. Va.	39	"
1840.	16 miles south of Clarksburg, W. Va.	55	"
1850.	23 miles south-east of Parkersburg, W. Va.	55	"
1860.	20 miles south of Chillicothe, Ohio	81	"
1870.	48 miles east by north of Cincinnati, Ohio	42	"
1880.	8 miles west by south of Cincinnati, Ohio	58	"
1890.	20 miles east of Columbus, Ind.	48	"

The centre of the area of the United States, excluding Alaska, is in northern Kansas, in approximate latitude 39° 55′ and approximate longitude 98° 50′. The centre of population is, therefore, about three-fourths of a degree south and more than seventeen degrees east of the centre of area.

UNITED STATES BOARD ON GEOGRAPHIC NAMES.—At the request of the Census office the Board has prepared a list of the names of counties in every State and Territory of the United States, officially corrected. The spelling in the census reports will conform to that adopted by the Board, and will also be adopted by the Post Office Department and all other branches of the Government. Subsequent editions of the Postal Guide will be corrected to correspond. This, the second Bulletin, will probably be issued the latter part of the present month.

HYDROGRAPHIC GEOGRAPHY.—Ensign James C. Drake, U. S. N., in his report on *The sounds and estuaries of*

Georgia with reference to oyster culture[*] describes the length, width, course, and (with great minuteness) the depth of ninety-nine streams and sounds along the coast of the State included between latitude 32° 03′ and 30° 43′ north. Ensign Drake was an assistant to Lieut. Winslow, who for three years was engaged in a similar work on the coast of North Carolina. Seven charts accompany the report.

Mr. Tarleton H. Bean[†] in treating of the physical characteristics of the environment of the salmon, describes with particularity, several bays, rivers and lakes of the Kadiak group of islands, Alaska. Several original topographical and reconnoissance maps of the region accompany the report.

In the central region of the Atlantic Ocean, in the neighborhood of the Madeira and the Canaries, recent bathymetric surveys have developed three unsuspected peaks rising abruptly out of the ocean, which here sinks to a depth of more than 2,000 fathoms. These, named Dacia Bank, Seine Bank, and the Salvages, together with Enderbury Island in the central part of the South Pacific Ocean, and the un-named shoal within late years developed by the U. S. ships *Tuscarora* and *Ranger*, in the ocean to the westward of San Francisco, are taken as the basis of "An inquiry (by G. W. Littlehales, of the U. S. Hydrographic Office) into the average form of isolated submarine peaks, and the interval which should obtain between soundings taken to disclose the character of the bottom of the ocean."[‡]

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[*] U. S. Coast and Geodetic Survey: Bulletin No. 19.

[†] Salmon and salmon fisheries of Alaska, 1890.

[‡] Hy. Office Pub. No. 95, 1890.

The author says: "This inquiry is undertaken with a view of fixing the ideas of navigators as to the proper interval between deep sea soundings taken to develop the existence of important changes in the bed of the ocean, and also with a view of affording some means of making comparisons between the slopes of land and submarine peaks by deducing the equation to the curve which, by revolution around a vertical axis, would generate the average of the surfaces of the submarine peaks above mentioned."

The deep sea soundings which have been observed in each of these localities are shown on charts.

In twelve sketches * Mr. Henry L. Marindin of the U. S. Coast and Geodetic Survey demonstrates graphically the movements of the tide in filling and draining the tidal reservoirs surrounding New York City. In the text accompanying he says: "If they were no more valuable than in aiding the study of the question of the respective values of the bays and flats as tidal reservoirs in maintaining the channel ways through Sandy Hook bar, they would then have repaid the time and labor spent in preparing them."

Bureau of American Republics.—This Bureau, of which Mr. W. E. Curtis is the director, is steadily engaged in gathering information that may be useful to producers, merchants, manufacturers and others interested in the development of commerce between the countries of the Western hemisphere. It should not be forgotten that the Bureau is available as a medium of communication for persons desiring reasonable infor-

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* U. S. Coast and Geodetic Survey: Appendix No. 9, Report for 1888. Washington, 1890.

mation in regard to the customs, tariffs and regulations, and the commerce and navigation of the American republics.

The *Hand Book of the American Republics* is the title given to the first Bulletin of the Bureau, recently issued, and dated January, 1891. It is an attractive volume of 288 pages, well printed on good paper, with nine illustrations, four of which are maps. It has a geographical chapter, and one containing historical notes. The others relate to the commercial and economic features of Latin America. There will also be a series of bulletins devoted to descriptions of each of the American republics, their resources, industries, commercial advantages, customs, laws, and regulations. Also a code of nomenclature containing a list of all articles of merchandise imported and exported, with their Spanish and Portuguese equivalents. Mr. Curtis will appreciate any suggestions that may be offered for increasing the value of the bulletins and their usefulness in fulfilling the purpose for which they are intended.

COLON "NORTHERS."—Commander Converse of the U. S. S. *Enterprise*, explains that what is designated in Colon as a "norther" is not necessarily a gale of wind; in fact, the wind frequently does not blow home, and is at such times quite light, but a very heavy ground swell heaves into the bay. When the wind does blow home, no vessel can remain at anchor in safety. Nor is there any prediction of these dangers. The barometer gives no indication. In December, 1890, the port was visited by a very severe type of the norther,—a memorable one; and the only reason there was not more damage to record is the simple fact that there were no sailing vessels present, and the harbor was comparatively clear. The norther was preceded by a heavy swell, but towards evening the swell decreased. Later in the night it commenced to heave in with great force, so that vessels were compelled to leave their wharves.

After daylight the full force of the norther began to be felt, and in a very short time it became so rough that all steamers put to sea. One steamer lying in the harbor with two anchors down, dragged nearly a mile before she could get sufficient steam to go to sea. The norther comes suddenly, and leaves no time for preparations, therefore during their "season" steamers are compelled to keep up steam constantly, ready to move at a moment's notice. It would be almost impossible to get up anchor without damage to the ship at such times.*

Mr. Everett Hayden, Marine Meteorologist of the Navy Department, commenting on this "norther," says: "The weather preceding the very severe norther in the Caribbean Sea from the 19th to the 21st of December last is illustrated by the above map [Pilot Chart of N. Atlantic, Jan. '91], which shows the conditions over the eastern United States, Mexico, and the western Atlantic, on the morning of the 17th. The conditions are typical of those that always accompany northers, which, it will be noted, are winds from an anticyclone central over northern Mexico and Texas, or even farther north, when there is a storm, or region of decidedly low pressure, moving up the Atlantic coast from about the Bahamas or the Gulf of Mexico, It will be seen from the above map that as the Texas anticyclone moved slowly eastward, the north-westerly winds in its front swept down through the Yucatan Channel, and, combining with the north-easterly winds prevailing over the Caribbean Sea, sent very heavy northerly seas into Colon. The name 'norther' is applied to the heavy sea, even though the wind itself does not reach as far south as Colon ; in the present case, however, it doubtless reached far south of the isthmus, into the Pacific."

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* *Notice to Mariners*, U. S. Hy. Off., Feb. 28, 1891.

ETHNOLOGY.—Mr. Albert S. Gatschet has handed the Director of the Bureau of Ethnology, as the result of long and patient study, his report upon the Klamath Indians of south-western Oregon. This tribe from time immemorial has inhabited a country surrounded by mountain ridges upon the eastern slope of the Cascade range, in the south-western part of the territory now forming the State of Oregon. The two main bodies forming the people are the Klamath Lake Indians and the Modoc Indians ; the latter well remembered on account of the "Modoc War" of 1872–73, the murder of Gen. Canby, etc.

This report, which is the long deferred volume 2 of *Contributions to North American Ethnology*, deals with the beliefs, legends, traditions, government, social life, and more extensively the language of this secluded people. An ethnographic sketch of one hundred pages is followed by texts of the Klamath language, with explanatory notes (about 200 pages), after which is a grammar, of about 500 pages. A second part of the work, soon to be issued, will contain the Klamath-English and English-Klamath dictionary. This work, by one of the most painstaking American ethnologists, constitutes the most extensive contribution to ethnographic science yet made in this country.

ALASKA BOUNDARY.—The surveying parties sent out by the Coast Survey at the instance of the Department of State for locating the boundary line at points on the Yukon and Porcupine rivers, at or near the 141st meridian of west longitude, having completed that work, the location of points in south-eastern Alaska, and the line of the "ten marine leagues from the coast line" will soon be commenced. The data and maps resulting from these surveys are designed to be used by the Government in the negotiation, adjustment, and definite settlement and location of the boundary between Alaska and British Columbia. When the results of this portion of the survey are made known, we shall have another and probably a final determination of the altitude of Mount St. Elias.

The late Congress did not sanction the plan of the Secretary of War for an exploration of Alaska by "a thoroughly equipped expedition."

PACIFIC CABLE.—During the closing hours of the last Congress the provision for cable communication between San Francisco and the Hawaiian Islands, which had been attached to the Diplomatic appropriation bill, fell into the hands of a conference ("trading") committee, and was lost.

This measure has been strongly urged by Presidents and Cabinets of both political parties and by the Foreign Affairs Committee of both Houses. Lieut. Richardson Clover, Hydrographer U. S. Navy, appeared by request before the Committee on Foreign Affairs on the 30th of January last, and made the following very clear argument:

"I will first state that the Sandwich Islands are the key to naval and commercial supremacy of the Pacific. Looking on gnomonic chart of the Pacific, where straight lines are routes of great circle and consequently the shortest distance between two points, you observe that Honolulu lies directly on the line between San Franciso and Sydney, Australia. Now draw a line from Valparaiso to Yokohama and again you cross Honolulu. Not only are these the shortest routes but the most advantageous in all respects and are used to-day by both steam and sailing vessels.

" When the Nicaragua Canal is completed the importance of Honolulu will be much enhanced, for it lies directly in the route of all vessels bound to ports of Asia, though vessels from the China or Japan coast to the canal will find a better route farther north. Lay a straight line, from a point off the Pacific end of the Nicaragua Canal, on your gnomonic charts to Yokohama, and you will no doubt be surprised to see that this line or the great circle course runs directly up the west coast, passes about 300 miles from San Francisco, and skirts the Aleutian Islands. Along this route, between Japan and our own coast, the great Japanese or Kuro-siwo current, analogous to our Gulf stream, flows to our shores, and the prevailing winds are in the same direction : past Honolulu, on the contrary, there is a westerly current, and westerly winds prevail.

" In the long voyages necessary in the Pacific, these facts cannot be ignored by even high-powered steamers. The consequence will be that between the Nicaragua Canal and Yokohama vessels will naturally pass via Honolulu, and when making the passage this way will touch at San Francisco. Under such conditions, can we afford to be without direct cable connection with Honolulu ? "

Major Charles E. Dutton, U. S. A., who lately visited the Hawaiian Islands, made some highly interesting remarks at a recent meeting of the National Geographic Society. Major Dutton is a gentleman of very wide experience and an accomplished scientist. Among other things he said : That the main attraction to travellers is the two active volcanoes. They are of great volume and quite extraordinary, the main one (Mauna Loa) being probably the greatest individualized mountain mass in the world. He thinks that one's ideas as to volcanoes are changed materially in view of the Hawaiian phenomena. Mauna Loa is 14,000 feet above the sea level, but its slopes extend so far below the level of the ocean that if the mountain were measured as it rises from the bed of the sea, it would have a base area of one hundred and eighty miles in diameter and a height of 32,000 feet. Of the two vents, one is 10,000 feet lower than the main one. The eruptive action is quiet, infrequently showing any signs of explosiveness or of the terrible force that characterizes many historic volcanoes. This, he said, is due to the small amount of water and vapor in the midst of the lava. The lava wells out and flows over the surface of the country quietly. The mountain is in process of building. The slopes are very gentle, the steepest being only about seven degrees. Ascent is not difficult if one knows the way, otherwise it is next to impossible. The way is through lanes that have been formed between the lava streams. There are as yet no spurs, ravines or gorges, but when the fissures through which the rain sinks, have been cemented up, the waters will make rivers, and gradually ravines and gorges will appear. The neighbor of Mauna Loa is Maunaka, an extinct volcano, a little higher, but steeper. He says that the landscape, aided by flowering trees and fronds of exceedingly large growth, is one of the most beautiful in the world, and that scenery of great grandeur is found on the mountains of Haliakala, the top of which, at some time or another has dropped out of sight, forming a great pit or gorge that rivals the glories of Yosemite.

The Hawaiian of the present day is not quite on a level with the whites of cultivated society, yet as a race the people are far advanced. Nearly all read and write in their own language, while an increasing percentage understand English.

ARTESIAN WELLS.—When Congress and the Director of the U. S. Geological Survey failed to agree, or held different views as to the methods to be employed to bring about practical irrigation in the arid regions of the West, the Secretary of Agriculture was directed to investigate and determine the proper location for artesian wells for irrigation purposes within the area west of the 97th meridian, and east of the foot-hills of the Rocky Mountains. The work was organized on a basis of engineering, geological and statistical inquiry, and covered an area of over 658,000 square miles.

The results found are, that the Dakotas have an artesian basin of vast extent, and that the physical geography of that region strongly testifies to the probable permanency of the water supply. It is believed that this basin is the largest and strongest yet discovered in the United States, or even in the whole world.

In the eastern portion of Wyoming a number of small artesian basins may be found. About sixty-five wells are reported in Nebraska. In the central section of the great plains region extending from the northern boundary of Nebraska to the southern boundary of the Indian Territory were found about 200 flowing wells, with several hundred more in which the water rises, but does not reach the surface. In Colorado four distinct artesian basins are reported, that of Denver alone containing about 350 wells. But the most remarkable basin in Colorado is just outside the west line of the investigation. Over 2,000 wells have recently been sunk in this basin. No basins of value have yet been developed in New Mexico. There are indications of an important artesian basin in the vicinity of Waco, Texas. There is a water-bearing stratum over 1,800 feet below the earth's surface, and about 1,200 feet below the level of the Gulf of Mexico. An 8-inch well, 1,834 feet deep, has a flow of 833 gallons per minute.

Facts and statistics bearing on irrigation have been collected by the Census Office, and Bulletin No. 35, recently issued, presents for the territory of Arizona the results of a careful and thorough investigation as to the extent to which irrigation is practised, the peculiar conditions prevailing in different localities, and the success that has so far attended the application of this system of agriculture, more particularly from the standpoint of the user of water.

EXPLORATIONS IN PALESTINE.—The directors of the Palestine Exploration Fund, London, having after the lapse of many years received during the past season permission from the Sultan, under certain restrictions, to renew their excavations and researches in the Holy Land, made arrangement with Mr. Flinders Petrie, a well-known and successful explorer of Egypt, to carry on the work, the Mediterranean coast in the vicinity of Ascalon and Gaza being selected as the field of operations. Mr. Petrie's discoveries, though interesting, appear to be hardly up to his expectations, and in some respects were quite disappointing. It is probable the work may be continued another season.*

The number of visitors to Jerusalem during 1890 exceeded that of any previous year, Americans preponderated over any other nationality. The English were the next largest in number. In this statement no estimate is made of the large bodies of pilgrims who go there to worship.

ICELAND.—In some notes on Iceland published in Edinburgh in the latter part of 1890, it is stated that few tourists visited the island last summer, and none at all the northern part, which by many is considered a more pleasant part for a summer holiday than the south. Travelling is difficult on account of the absence of roads and want of accommodations. Until quite recently there were bridle-paths only, and no proper roads. The first road made was begun about two years ago, and does not yet extend further than a few miles out of Reykjavik.

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*Consul Gillman to the Department of State.